
Space Weather Forecast

Issued on Thursday 16 January 2025 at 12:50 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Chance of isolated Moderate class flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with frequent low common class flares, with the peak flare from a new region in the northwest. This region rapidly emerged in this period, and has continued to develop with the formation of a weak mixed magnetic polarity spot. Slow growth has also been observed in the large region in the northeast, and a further moderately sided bipolar region in the southeast. There are a seven sunspot regions on the disc, with the other regions smaller and simpler.

No Earth-bound coronal mass ejections (CMEs) were observed in available imagery.

Solar Wind / Geomagnetic Activity: Ongoing fast wind influence was observed, from CH08/-. Solar wind speeds were mainly elevated, between 450-500 km/s, with brief peaks towards 550km/s. Density was average to below average. Interplanetary Magnetic Field was Weak to Moderate. The north-south component was Weak and variable in direction. Geomagnetic activity was Quiet to Unsettled (Kp1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected, with a chance of isolated Moderate class flares. There is a slight chance of a Strong flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Ongoing coronal hole influence is expected, likely persisting for much of the period. Slightly elevated to elevated solar winds forecast, perhaps peaking days 2-3 (17-18 Jan). Mainly Quiet to Unsettled geomagnetic activity is expected with a chance of Active intervals on all days. There is a slight chance of reaching a G1 Minor Storm interval, perhaps slightly higher days 2-3 (17-18 Jan).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to persist at background with no Solar Radiation Storms occurring.

Geomagnetic Storms

Geomagnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	5	10	10	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 (M Class)	No	60	60	60	60
Very Active	R3-R5 (X Class)	No	10	10	10	10

Solar Radiation Storms (High Energy Protons)

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	5	5	10	10
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = cm ⁻² sr ⁻¹ s ⁻¹)						